Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

nant state (these had previously been found in similar galls on the root-fibres of *Sedum* and grasses). On Anguillulæ of *Talcaria Rivinii* compare Frauenfeld, Verh., Z.-B., Ges. Wien, xxii, p. 396. — *Zoological Record for* 1872.

GEOLOGY AND PALEONTOLOGY.

The Disintegration of Rocks and its Geological Significance.[1]—This subject the speaker had briefly noticed in a communication to the Association in 1873, on the geology of the Blue Ridge. The change of the rocks in question is a chemical one, which is most obvious in the case of crystalline rocks; the feldspar loses its alkalies and part of its silica, being changed into clay, and the hornblende its lime and magnesia, retaining its iron as peroxide. From this results a softening and decay of the rocks to greater or less depths, so that while the beds still retain their arrangement, and are seen to be traversed by veins of quartz and of metallic ores, they are often so much changed to depths of a hundred feet or more as to be readily removed by the action of water. This phenomenon is well seen in the crystalline rocks of the Blue Ridge, and not less remarkably in those of Brazil, where it has been noticed by many observers, among the latest of which is Professor Hartt. Darwin, who long ago described it, imagined the change to have been effected beneath the sea, but according to the speaker it has been a sub-aërial process, which has been at work during past ages, when the composition of the atmosphere and the climatic conditions differed from those of to-day, and when carbonic acid, aided by warmth and moisture, abounded. He connected it with that slow purification of the atmosphere which, from very early times, has been going on. The alkalies and lime and magnesia, set free in this process, absorbed the atmospheric carbonic acid, and the carbonates carried down to the sea in a dissolved state gave rise to limestones, dolomites, and common salt. Such a process of decay was already active at an early period, and, from facts observed in Missouri by Pumpelly, had affected the iron-bearing feldspar-porphyries at the commencement of palæozoic time. It was, according to the speaker, from the washing down of the thus decomposed crystalline rocks that all the clays and sands which had gone to build up the sediments of our vast beds of palæozoic and more recent rocks had been either directly or indirectly derived. This had already been pointed out by Lyell for the tertiaries of the southern states. He thought it probable that the process of decay had gone on with decreasing energy to our times, though it is now insignificant in its action, owing to changed atmospheric conditions.

---

[1] Abstract of a paper read before the American Association for the Advancement of Science, at the Hartford Meeting, August, 1874.

The speaker drew a picture of North America in past geological ages. The frequently taught notion of the growth of our continent southward and outward from a nucleus in the vicinity of the great lakes has no foundation in fact, and the study of the uncrystalline sedimentary formations tells a different story. The great palæozoic basin was to the east and west, as well as the north, surrounded by areas of decaying crystalline rocks. Those of New England, of the Blue Ridge, and of the crystalline area to the east of it are the remains of a great disintegrated and wasted continent, whose ruins have built up the uncrystalline rocks to the westward of it, as well as the sediments along the eastern and southern borders of the United States. Up to a comparatively recent period, the hills of New England, eastern New York and New Jersey, were probably, like those farther southward along the Blue Ridge, deeply covered by the products of their own decay, and from these were derived the clays, as well as the brown iron ores which are found along the base of the Blue Ridge and its northeastern continuation.

It was during the glacial period, which the speaker considered to have been one of submergence and subsequent gradual uplift of northeastern America, at which time it was exposed to the action of local glaciers and to the iceberg-drift of the polar current, that the final removal of this decayed covering from our hills had taken place, while farther southward the mountains beyond the reach of this denuding action still retained to-day their covering of decayed rock. A similar condition of things is to be seen in northwestern Minnesota, where, according to White, the decayed crystallines have escaped denudation. The process of decay in the more massive and granite-like rocks had often been incomplete, and working from natural joints had left unchanged nuclei of hard rock which, when erosion took place, remained as rounded masses or bowlders; a point which has been well brought out by Mr. Burbank from his studies in North Carolina, and throws much light on our northern drift-deposits.

A profound decay had also affected the hard palæozoic limestones, from which the carbonate of lime had been dissolved, leaving a porous, rotten rock behind. This, as Dawson has shown, is well seen in the impure argillaceous Trenton limestone near Montreal, which, in localities protected by trappean dikes from the eroding action which came from the northeast, is found deeply decayed, while elsewhere, near by, its hard surface is worn down and glaciated. Examples of a similar local exemption of the decayed crystalline rocks from erosion are not wanting in New England.[1]

The speaker alluded, in closing, to a process of mechanical disintegration, without chemical change, which in past ages had broken up undecayed crystalline rocks to form breccias and conglomerates. These are seen locally, from the ancient porphyry-conglomerates of the Lake Superior copper-mines to very recent deposits, and a remarkable example is met with in the beds of granitic material, which, in a recemented state, make up parts of the red sandstone of the Connecticut valley. The slow breaking up of many crystalline rocks by the action of frost had been suggested by Dawson as a potent agent in the production of such material, and the speaker conceived that this, in the present state of our knowledge, was the most probable explanation of its origin.—T. STERRY HUNT.

ANTHROPOLOGY.

ARTIFICIAL PERFORATION OF THE CRANIUM.—I wish to call attention to what seems to me to betoken a singular practice connected with the burial ceremonies of the aboriginal inhabitants of this country, and of which I can find nothing on record in the books, notwithstanding the remarkable nature of the custom, and the indubitable marks which would remain to testify in instances where it had been adhered to. I have reference to the artificial perforation of the top of the head after death.

The circular aperture, evidently made by boring with a rude, probably stone, implement, varies in size, in some instances having

---

[1] An example of this is seen in Kent in Connecticut, and also in North Adams, Massachusetts, where the tunnel lately made through the Hoosac Mountain shows that the gneiss rock at its western base is completely decomposed to a depth of 200 feet or more; while on the summit of the mountain are seen worn and glaciated surfaces of the same rock in an undecomposed state.